

EXHIBIT 17

connected. The *DOOR BYPASS* key switch is provided to allow maintenance personnel access to the work area without disconnecting power. This bypass switch only allows access during Manual and Calibration modes.

Light Curtain

Some machines are equipped with an optional light curtain. The light curtain is redundant and self-checking. The control signals from the light curtain are included as safety devices in the safety circuit. On machine power up, the light curtain must be reset by turning the key switch to 'Reset' for at least 1/4 second.

Exhaust Fan

Some machines are equipped with an exhaust fan. The exhaust fan is provided to exhaust fumes from the work area. The exhaust flange should be connected to an appropriate ducting system that is capable of receiving 150 CFM (cubic feet per minute). Insufficient airflow through the exhaust system generates an error.



NOTE: Installed safety devices vary from model to model.

Operation

Startup Procedure


- 1) Check the fluid and air pressures.
- 2) Close all doors and turn the *DOOR BYPASS* key switch to the OFF position (If applicable).
- 3) Engage the *EMERGENCY STOP* button.
- 4) Turn on main power using the red rotary switch at the front or rear of the machine (Black "rocker" switch on PVA250™ and PVA250E™ models).

Light Tower Operation

Three stacked indicator lights and a buzzer are used to indicate the status of the machine. The lights are green, amber, and red with green on the bottom, amber in the middle and red on top. The buzzer is located below the green light. The lights are visible from all sides of the machine. The indicators operate as follows. The light tower may help you be your first clue for solving a problem.

- o The green indicator is on when the machine is in cycle and producing parts. It is off at all other times.
- o The amber indicator is on when the machine is in Auto Cycle and ready to produce parts, but can not cycle due to an external material handling problem (no incoming parts or no room to unload parts). PVA750™ and PVA2000C™ models are equipped with a light tower but not an amber light.
- o The red indicator is on steady when the machine is not in Auto Cycle due to operator intervention. It will flash when the machine is in cycle, but cycle is halted due to a machine problem. It is off at all other times.
- o The buzzer cycles with the red indicator during machine errors.

Table 4 – Light Tower & Buzzer Status



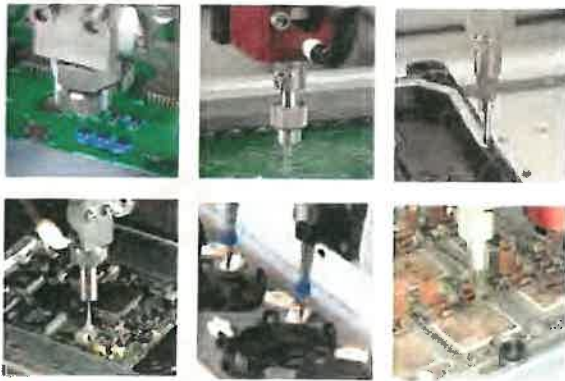
State	Red	Amber	Green	Buzzer
Cycle Stop	ON	OFF	OFF	OFF
Auto Cycle	OFF	ON	OFF	OFF
In Cycle	OFF	OFF	ON	OFF
Machine Error	FLASH	OFF	OFF	FLASH

Exhaust Verification

Once the workcell has initialized, most models will perform an exhaust flow verification process. If initialization fails, consult the section Startup Errors on page 44. During this process, and whenever the workcell is in operation the exhaust flow rate is monitored via the on board pressure differential switch. The workcell must exhaust at a rate no less than 150 cubic feet per minute, otherwise a critical fault will occur shutting the motors down. The verification process will also attempt to evacuate any potential vapors that may already exist in the work area of the work-



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About PVA

PVA is a global manufacturer of conformal coating systems, innovative fluid dispensing solutions and precision valve technology. Throughout the changing global manufacturing landscape, PVA remains committed to providing our customers with exceptional products and global support.

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Coating & Dispensing Systems • Valves • Curing Ovens • Consumables • Fume Filtration • More •

Industries

Electronics • Automotive • Aerospace • General Packaging • Medical Device • Renewable Energy Consumer Goods • Military / Defense

Product Guide

Selective Conformal Coating & General Dispensing

PVA350 Tabletop Selective Coating System
PVA650 Selective Coating System
PVA2000 Selective Coating System
PVA3000 Automated Dispensing System
PVA6000 Coating and Dispensing System

Microelectronics – (Underfill, Paste, Encapsulant)

PVA350SMT Tabletop SMT Dispensing System
PVA650SMT SMT Dispensing System

Meter-mix Dispensing

MX3000 / MX4000 Gear Pump Meter-Mix Systems
MX1000 / MX1500 Rod Displacement Meter-Mix

Optical Bonding

PVA710 Optical Bonding System

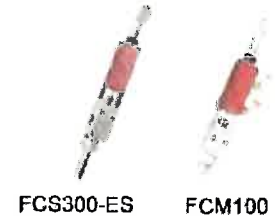
Dispensing Consumables

Needles and Tips
Static Mixers

PVA Product Overview

Valve Options

FCM Series Micro Dispense
FCS Series Atomized Spray
FC Series Needle Dispense
SVX Auger Valve
MV Series Shot Metering
CA Series Diaphragm Valves
PC Series 2-part Mixing Valves
VPX Series Volumetric Pump
-CF Series Film Coating (Airless) Valves



Manual/Benchtop Dispensers

Valve/Syringe Controllers
Valve/Syringe Stands
Custom Solutions



Inline Curing Ovens

IR2000 Infrared Heat Curing Chamber
UV1000 Ultraviolet Light Curing System
UV2000 Ultraviolet Light Curing Chamber
UV5000 UV Flood Lamp Curing System



Custom Automation

Selective Soldering
Odd-form Pick and Place
Automated Screw Driving
Automated Optical Inspection



Material Delivery Tanks / Pumps

PVA-1LBCA One Pound Bottle Pre
PVA-1LTUV One Liter Bottle Pressure Reservoir
PVA-2LTUV 2 Liter Bottle Pressure Reservoir
PVA10G Ten Gallon Stainless Steel Pressure Tank Assembly
DPCC Fluid Delivery System
PVA-1GPU One Gallon Hydraulic Metering Pump
CP Series Pumps for Medium to High Viscosity Materials

Fume Filtration

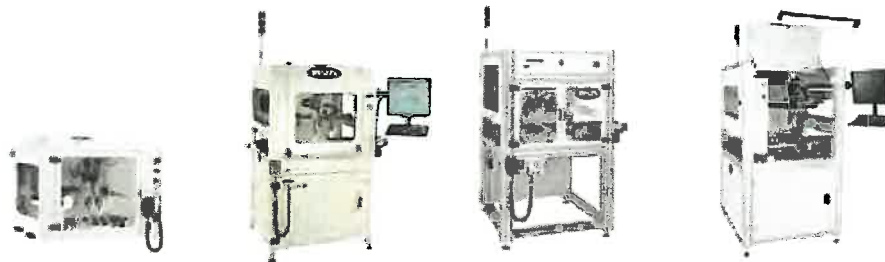
FX800 Fume Filtration System



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fx 518 371 2688
www.pva.net

Jan. 2013

Selective Coating Equipment Comparison



	PVA350	PVA650	PVA2000	PVA6000
Repeatability	.025mm	.025mm	.025mm	.025mm
Max Speed	500mm/sec	670mm/sec	670mm/sec	670mm/sec
Encoder Resolution	5 micron	5 micron	5 micron	5 micron
Gantry Drive System	Closed Loop DC servo, Ballscrew Drive	Closed Loop DC servo, Ballscrew Drive	Closed Loop DC servo, Ballscrew Drive	Closed Loop DC servo, Ballscrew Drive
Max Acceleration	0.25 g	0.5 g	0.5 g	0.5 g
Travel				
Initial XY Axis Travel	400mm x 400mm	500mm x 500mm	500mm x 500mm	500mm x 500mm
Z Axis Travel	90mm	90mm	100mm	100mm
Board Handling				
Conveyor Type	N/A	Flat Edge Belt or Chain	Flat Edge Belt or Chain	Flat Edge Belt or Chain
Min Conveyor Width	N/A	50mm	50mm	50mm
Above Board Clearance	70mm	70mm	62mm (standard) 100+mm (optional)	75mm (standard) 100+mm (optional)
Under Board Clearance	80mm	70mm	100mm (standard)	100mm (standard)
Transport Height	N/A	940mm to 965mm	940mm to 965mm	940mm to 965mm
Conveyor Protocol	N/A	SMEMA	SMEMA	SMEMA
Standard Board Sizes	Up to 380mm Depending on Options	50mm-457mm Depending on Options	50mm-457mm Depending on Options	50mm-457mm Depending on Options
Facilities				
Power	120 to 240 VAC, 50/60hz	120 to 240 VAC, 50/60hz	120 to 240 VAC, 50/60hz	120 to 240 VAC, 50/60hz
Air Supply	<10 CFM at > 80 PSI (5.5 bar) Filtered @ 5microns	<10 CFM at > 80 PSI (5.5 bar) Filtered @ 5microns	<10 CFM at > 80 PSI (5.5 bar) Filtered @ 5microns	<10 CFM at > 80 PSI (5.5 bar) Filtered @ 5microns
Footprint	945mm x 832mm x 794mm	1219mm x 941mm x 1607mm	1219mm x 1097mm x 1651mm	1219mm x 1257mm x 1687mm
Exhaust	300cfm minimum	300cfm minimum	300cfm minimum	300cfm minimum
Features				
Four-Axis	Option	Option	Option	Option
Bar Code Reading	Option	Option	Option	Option
Passive Programming Camera	Option	Option	Option	Option
XY Fiducial Camera	Option	Option	Option	Option
Part Shuttles	Option	Option	Option	Option
Exhaust Blower	Option	Option	Option	Option
PathMaster Software	Standard	Standard	Standard	Standard
Offline Programming	Standard	Standard	Standard	Standard
Onboard Computer	Option	Standard	Option	Standard
Flow Monitoring	Option	Option	Option	Option
Dual/Multi Head Tooling	Option	Option	Option	Option

PVA Patents

PVA holds four US patents, including the only **TRUE** four-axis motion capability featuring patented tilt and servo rotation control (4 axis patent – #6447847), and the atomized spray valve technology (ES Valve patent – #6523757).



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Head 4:	
Z-slide (y/n):	
Stroke Adjust (y/n)	
Rotary (y/n):	
Size 7 or 10:	
Valve:	
Atom Air range:	
O-ring material:	
Laser Height (y/n):	No
Laser Pointer (y/n):	No
Prog. Camera (y/n):	Yes
Head tooling:	Standard 3 Axis, 2 Valve ✓
Custom:	No
Double tooling:	No
Other:	
Conveyor:	None
Type: (Belt/Chain)	
Direction (L/R, R/L):	
Conveyor length:	
Conveyor height:	
SYSTEM:	
Bi-Directional (y/n)	
Upstream/Downstream	
PIP Sensors:	
Auto width adj:	
Hand crank width adj:	
Lift and locate:	
Board locators:	
Board stops: (Type)	
Quantity on front rail:	
Quantity on back rail:	
Part Fixturing:	Yes ✓
Flex Fixture:	Yes
Part present sensor:	No
Custom Fixture:	No
Work height:	
Cycle Start:	Hand Start
Hand start:	Yes ✓
Single zero force:	No
Double zero force:	No
Controller (y/n)	No
Push button:	Yes

4/27/2009

Guarding	
Doors:	Yes <input checked="" type="checkbox"/>
Interlocks: (y/n)	Yes <input checked="" type="checkbox"/>
Light curtain:	No <input type="checkbox"/>
Light tower:	No <input type="checkbox"/>
Process Controls	
Flow Monitor:	No <input type="checkbox"/>
Remote transmitter: (y/n)	-
Gear style: (y/n)	-
Low level:	No <input type="checkbox"/>
Auto Crossover:	No <input type="checkbox"/>
Computer:	Yes <input type="checkbox"/>
Portal OIT: (y/n)	No <input type="checkbox"/>
Bar code reader:	No <input type="checkbox"/>
ATB Box: (y/n)	No <input type="checkbox"/>
Data Logging:	No <input type="checkbox"/>
Needle Calibration:	No <input type="checkbox"/>
Black light:	No <input type="checkbox"/>
Cycle rate (sec.)	Unknown
Air Requirements	
PSI:	80 - 100 <input checked="" type="checkbox"/>
Dry: (y/n)	Yes <input type="checkbox"/>
Lubricated: (y/n)	No <input type="checkbox"/>
CFM:	< 10 <input type="checkbox"/>
Ventilation	
Minimum CFM:	300 <input checked="" type="checkbox"/>
Flange dia.: (4" or 5")	5" <input checked="" type="checkbox"/>
PVA blower: (y/n)	No <input type="checkbox"/>
Blower exit diameter:	-
Exhaust switch: (y/n)	Yes <input checked="" type="checkbox"/>
Supply Voltage:	
120VAC:	Yes <input checked="" type="checkbox"/>
220VAC:	No <input type="checkbox"/>
Frequency:	60 Hz <input checked="" type="checkbox"/>
Current:	2A <input checked="" type="checkbox"/>
Phase:	Single <input checked="" type="checkbox"/>
Casting Materials	
Material A:	SCX NV14
Material B:	-
Solvent:	None
Kalrez O-rings? (y/n)	Yes <input type="checkbox"/>

4/27/2009